



# 2017 Consumer Confidence Report



## Continuing Our Commitment

Once again, the City of Monroe Water Department is proud to present our 20th Annual Water Quality Report (Consumer Confidence Report) covering all testing performed between January 1 and December 31, 2017. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal standards. We continually strive to adopt new methods for delivering the best quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please share with us your thoughts or concerns about the information in this report. After all, well-informed customers are our best allies.

## Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Water Drinking Hotline (800-426-4791), or <http://water.epa.gov/drink/hotline>.

## Where does my water come from?

The City of Monroe Water Department customers are fortunate because they enjoy an abundant supply of water from an excellent source. The Monroe Water Treatment Plant draws water from the Western Basin of Lake Erie. This Great Lake contains over 116 cubic miles of water. Two intakes gravity feed raw water to our onshore pumping station. From there it is pumped approximately eight miles to our treatment plant. The Monroe Water Treatment Plant was constructed in 1924, and has had major expansions in 1948 and 1972, and provides roughly 2.8 billion gallons of clean drinking water every year. To learn more about our watershed on the internet, go to the U.S. EPA Surf Your Watershed at [www.epa.gov/surf](http://www.epa.gov/surf).



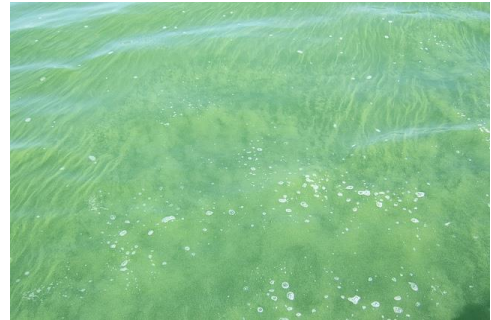


## Source Water Assessment

Your water comes from the Lake Erie watershed, which includes portions of the Huron River and Stony Creek watersheds. In 2004, the state performed a mandated assessment of our source water to determine the susceptibility or relative potential for contamination. The susceptibility rating is on a seven-tiered scale from very-low to very-high based primarily on geologic sensitivity, water chemistry, and contaminant sources. Our source water was determined to have a high susceptibility. Significant potential sources of contamination include 54 hazardous or solid waste sites and 18 industrial discharge site facilities within the watershed area. In 2012, Real-Time Monitoring equipment was installed at our intake station to monitor raw water quality parameters for assistance in modifying our treatment if necessary. Please note, however, that historically the Monroe Water Treatment Plant has effectively treated our source water to meet all drinking water standards.

## Preventing Harmful Algal Blooms

Since 2011, Harmful Algal Blooms (HAB's) have been a major concern to businesses and residents alike that are influenced by Lake Erie. To help educate and raise awareness concerning harmful algal blooms, the U.S. EPA has released two short videos that illustrate the potential causes and effects of nutrient pollution in Lake Erie. As the videos show, Algal blooms not only affect the recreational (fishing, swimming, boating) use of water, but also have a major impact on our drinking water. The algal blooms have been known to produce toxins that, over time, can cause serious illness, and even death. The videos can be viewed at <https://youtu.be/Wa1rLFq3DG4> and <https://www.youtube.com/watch?v=vCicSNnKUvM>.



## Substances That Could Be in Water

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's (EPA) Safe Drinking Water Hotline (800-426-4791).

To ensure that tap water is safe to drink, U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it can acquire naturally occurring minerals, in some cases, radioactive material; and substances resulting from the presence of animals or from human activity. Substances that may be present in source water include: Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife; Inorganic Contaminants, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, or farming; Pesticides and Herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses; Organic Chemical





Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and may also come from gas stations, urban stormwater runoff, and septic systems; Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

### **How is My Water Treated?**

The water treatment process consists of a series of steps. First, raw water is drawn from Lake Erie where a molluscicide is added for zebra mussel control. Once it reaches the treatment plant, ozone (a powerful oxidant) is added for taste and odor control, as well as for microcystin inactivation. The water then goes to mixing tanks where aluminum sulfate (a coagulant) is added. The addition of this chemical causes small particles to adhere to one another (called floc), making them heavy enough to settle into a basin from which sediment is removed. Chlorine is then added for disinfection (we carefully monitor the amount of chlorine, adding the lowest quantity necessary to protect the safety of your water without compromising taste). At this point, the water is filtered through layers of fine coal and silicate sand. As smaller, suspended particles are removed, turbidity (an optical quality of the water) disappears and clear water emerges. Finally, fluoride (used to fight tooth decay) and a corrosion inhibitor (used to protect distribution system pipes and to minimize leaching of lead and other unwanted contaminants.) are added before the water is pumped to sanitized, underground reservoirs, elevated tanks, and into your home or business.

### **Information on the Internet**

The U.S. EPA Office of Water ([www.epa.gov/watrhome](http://www.epa.gov/watrhome)) and the Centers for Disease Control and Prevention ([www.cdc.gov](http://www.cdc.gov)) Web sites provide a substantial amount of information on many issues relating to water resources, water conservation and public health. Also, the Michigan Department of Environmental Quality has a web site ([www.michigan.gov/deq](http://www.michigan.gov/deq)) that provides complete and current information on water issues in our state.

### **System Improvements**

Several system-wide improvements are planned for fiscal year 2018–2019, which will extend and maintain the service life of system facilities. At the Water Treatment Plant & Raw Water Intake Facility we are planning projects to replace turbidity equipment, painting plant piping, installing a raw water pump for establishing firm capacity, and allocating funding to replace pumps, motors, drives and piping. Distribution system improvements include replacing equipment including a dump truck and backhoe along with approximately 5,870 feet of various sized water mains in an effort to maintain water service, quality, and improving reliability, flow, pressure, and efficacy.

### **Additional Information for Lead**

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Infants and children who drink water-containing lead in excess of the AL could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Monroe is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to



minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

The City of Monroe water treatment process includes adding a corrosion inhibitor to treated water for addressing system corrosion and elevated lead levels in water. Our water system has approximately 14,250 customer sites within our service area. Approximately 700 sites have full or partial lead service lines into their homes where 2,000 sites are galvanized or need field verification. Lead and galvanized service lines can be a source of lead leaching from the pipes. Pending 2018 state legislation will change how lead in water is handled in the future regarding water treatment, distribution, sampling, testing along with infrastructure repair and replacement. The City of Monroe has been in all regulatory compliance with all past lead sampling. Customers curious as to their lead levels at the tap can buy a consumer lead testing kit and test their water themselves. The Water Department can help customers with interpreting test results. The Water Department lead sample testing costs approximately \$50 each. Eliminating lead service lines is the best long-term solution to the problem of lead in drinking water. We do replace lead service lines every year in conjunction with street construction and other maintenance projects and otherwise as budget and time permits.

### **Community Participation**

You are invited to participate in our public forum and voice your concerns about your drinking water. We meet the first and third Monday of each month, beginning at 7:30 p.m., at the Monroe City Hall Council Chambers, 120 East First Street, Monroe, Michigan 48161.

### **Results of Cryptosporidium monitoring**

Cryptosporidium is a microbial pathogen found in surface water throughout the U.S. Although filtration removes cryptosporidium, the most commonly-used filtration methods cannot guarantee 100 percent removal. Our monitoring indicates the presence of these organisms in our source water however, there have not been any detected in our finished water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of cryptosporidium may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immunocompromised people are at greater risk of developing life-threatening illness. We encourage immunocompromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection. Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water.

### **Why Does My Water Look Milky or Cloudy?**

During the time of year when the water coming into your house is colder than the temperature inside the house, this phenomenon can occur. Cold water holds more dissolved oxygen than warm water does; consequently, when cold water from outside water mains comes inside our warm homes, and the water begins to warm, the oxygen has to escape. It escapes in air bubbles that turn the water cloudy. A visual example of this is to run cold water into a clear container and observe it for a short time. If the water clears from the bottom to the top of the container then the phenomenon described above is occurring. The oxygen bubbles are moving from the bottom to the top of the container to escape into the open atmosphere.







## Water Quality Data Table

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of contaminants in water provided by public water systems. The table below lists all of the drinking water contaminants that we detected during the calendar year of this report. Although many more contaminants were tested, only those substances listed below were found in your water. All sources of drinking water contain some naturally occurring contaminants. At low levels, these substances are generally not harmful in our drinking water. Removing all contaminants would be extremely expensive, and in most cases, would not provide increased protection of public health. A few naturally occurring minerals may actually improve the taste of drinking water and have nutritional value at low levels. Unless otherwise noted, the data presented in this table is from testing done in the calendar year of the report. The EPA or the State requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not vary significantly from year to year, or the system is not considered vulnerable to this type of contamination. As such, some of our data, though representative, may be more than one year old. In this table you will find terms and abbreviations that might not be familiar to you. To help you better understand these terms, we have provided the definitions below the table.

Contaminants	MCLG or MRDLG	MCL, TT, or MRDL	Detect In Your Water	Range		Sample Date	Violation	Typical Source
				Low	High			
Disinfectants & Disinfection By-Products								
(There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants)								
Bromate (ppb)	0	10	2.5	1.1	5.3	2017	No	By-product of drinking water disinfection
Chlorine (as Cl2) (ppm)	4	4	1.04	.72	1.35	2017	No	Water additive used to control microbes
Haloacetic Acids (HAA5) (ppb)	NA	60	16	6	25	2017	No	By-product of drinking water chlorination
TTHMs [Total Trihalomethanes] (ppb)	NA	80	27	7	35	2017	No	By-product of drinking water disinfection
Total Organic Carbon (% Removal)	NA	TT	27	20	36	2017	No	Naturally present in the environment
Inorganic Contaminants								
Fluoride (ppm)	4	4	.71	.13	.78	2017	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate [measured as Nitrogen] (ppm)	10	10	.6	NA	NA	2017	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits



Contaminants	MCLG or MRDLG	MCL, TT, or MRDL	Detect In Your Water	Range		Sample Date	Violation	Typical Source
				Low	High			
Sodium (optional) (ppm)	NA		17	NA	NA	2017	No	Erosion of natural deposits; Leaching
Microbiological Contaminants								
Total Coliform (RTCR) (% positive samples/month)	NA	TT	NA	NA	NA	2017	No	Naturally present in the environment
<i>E. coli</i> in the distribution system (positive samples)	See <i>E. coli</i> <sup>3</sup> note below	0	1	NA	NA	2017	Yes	Human and animal fecal waste.
Turbidity (NTU)	NA	0.3	100	NA	NA	2017	No	Soil runoff
100% of the samples were below the TT value of .3. A value less than 95% constitutes a TT violation. The highest single measurement was .05. Any measurement in excess of 1 is a violation unless otherwise approved by the state.								
Contaminants	MCLG	AL	Your Water	Sample Date	# Samples Exceeding AL	Exceeds AL	Typical Source	
Inorganic Contaminants								
Copper – action level at consumer taps (ppm)	1.3	1.3	.35	2016	0	No	Corrosion of household plumbing systems; Erosion of natural deposits	
Inorganic Contaminants								
Lead – action level at consumer taps (ppb)	0	15	15	2016	4	No	Corrosion of household plumbing systems; Erosion of natural deposits	

<sup>3</sup> *E. coli* MCL violation occurs if: (1) routine and repeat samples are total coliform-positive and either is *E. coli*-positive, or (2) supply fails to take all required repeat samples following *E. coli*-positive routine sample, or (3) supply fails to analyze total coliform-positive repeat sample for *E. coli*.

We had a total coliform-positive repeat sample following an *E. coli*-positive routine sample.

## Violations and Exceedances

### Level 2 Assessment and Sanitary Defects

*E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems. We found *E. coli* bacteria, indicating the need to look for potential problems in water treatment or distribution system. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during the assessment.



Violations and Exceedances	
We were required to complete one Level 2 Assessment because we found <i>E. coli</i> in our water system. In addition, we were required to take three corrective actions and we completed all three of these actions.	
Unit Descriptions	
Term	Definition
ppm	ppm: parts per million, or milligrams per liter (mg/L)
ppb	ppb: parts per billion, or micrograms per liter (µg/L)
NTU	NTU: Nephelometric Turbidity Units. Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.
% positive samples/month	% positive samples/month: Percent of samples taken monthly that were positive
NA	NA: not applicable
ND	ND: Not detected
NR	NR: Monitoring not required, but recommended.

Important Drinking Water Definitions	
Term	Definition
MCLG	MCLG: Maximum Contaminant Level Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
MCL	MCL: Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
TT	TT: Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.
AL	AL: Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
Variances and Exemptions	Variances and Exemptions: State or EPA permission not to meet an MCL or a treatment technique under certain conditions.
MRDLG	MRDLG: Maximum residual disinfection level goal. The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
MRDL	MRDL: Maximum residual disinfectant level. The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
MNR	MNR: Monitored Not Regulated
MPL	MPL: State Assigned Maximum Permissible Level
Level 2 Assessment	A very detailed study of the water system to identify potential problems and determine (if possible) why an <i>E. coli</i> MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.



**For more information please contact:**

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